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SHORTER ARTICLES AND DISCUSSION

THE RESEMBLANCE OF YOUNG TWINS IN HANDWRITING

By each of 144 children 7 to 15 years old, forming 72 twin pairs, the first name (and usually also a word or so like ''years old'' or March or grade) was written. These were pasted on cards identified by chance numbering. Twelve men and women of good general education, but of no special experience in identifying handwritings, were shown the 72 specimens belonging to 72 first members of twin pairs and asked to match each by the specimen of the remaining 72 which most resembled it.

There was thus one chance in 72 of a correct match by chance, or 12 chances for all judges combined. There were in fact 6, 4, 8, 4, 6, 6, 7, 1, 3, 6, 3 and 4 correct pairings made by the twelve judges, respectively, or 58 in all.

It would be possible by the same method to derive a scale for unintentional resemblance in specimens of handwriting as shown roughly below. Such a scale might indirectly be of use in the study of questioned documents, since the resemblance of one specimen of an individual's writing to another specimen by himself may be regarded as the limiting case of the unintentional resemblance found amongst different individuals. A scale for resemblances produced intentionally would presumably form a series in which the resemblances would, upon analysis, be found characteristically different from the unintentional or natural resemblances. The genuineness of a questioned specimen of writing might thus be determined in part by measuring its resemblance to the unquestioned specimen in the different elements characteristic of the two scales. Resemblances of certain sorts might thus be used as actual evidence of forgery, and differences of certain sorts as evidences of genuineness, more systematically and objectively than is now the case.

Specimens 145 and 147 have a curious interest as a result of possessing nearly as close resemblance between two ''natural'' writings by two different persons as is likely ever to be found. It is probable that if the individuals in question had each written

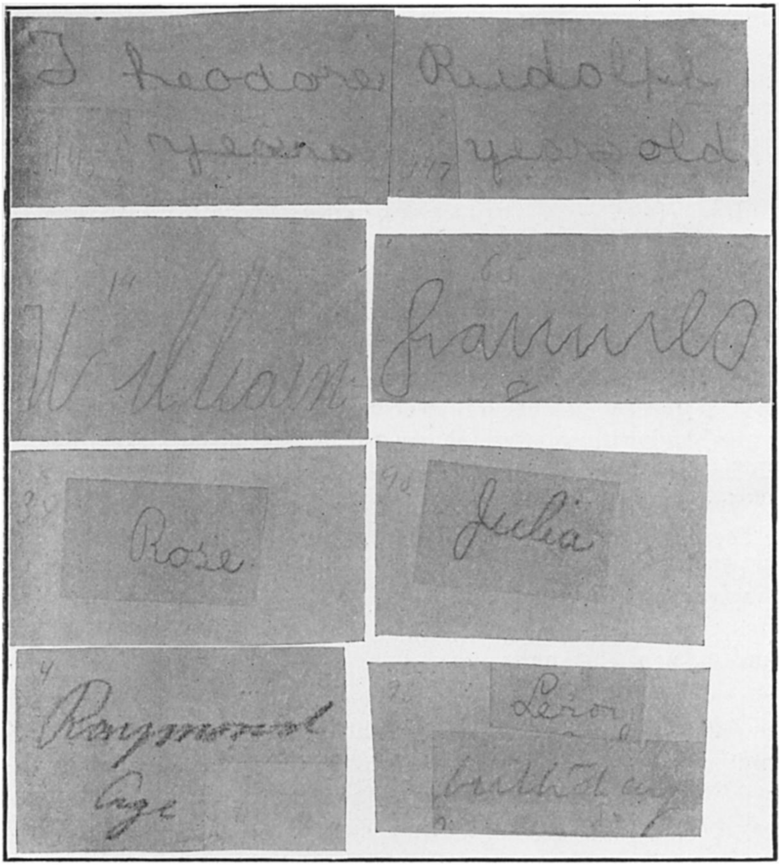

FIG. 1. Rough Scale of Resemblances in Handwriting. 145 and 147 were regarded as matches by 11 of the 12 judges; 19 and 65 were so regarded by 5 judges; 38 and 90, by 2 judges; 4 and 96 by none.

a hundred natural specimens of the same two words, and if judges of the training of tellers in banks had been given the task of separating the two hundred specimens into the hundred by individual *A* and the hundred by individual *B*, the percentage of failures would have been considerable. These specimens, that is, may illustrate the possibility of successful forgery without artifice.

In general, of course, the experiment shows how very, very rare the case of substantially perfect resemblance of two natural signatures by different individuals will be. One case amongst 72 pairs of twins probably signifies less than one case in a thousand amongst the general population of as close resemblance as 145 and 147. Twins are probably distinguishable by their handwriting oftener than by their physical appearance; for I am confident that the bodies of at least five and probably more of these 72 twins would have been as hard to tell apart from a minute's visual inspection as specimens 145 and 147. Of people in general this would probably not hold true, but the distinguishing value of a specimen of natural writing is very high even for them.

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ALLELOMORPHS AND MICE

IN the February number of this journal, C. C. Little points out that Cuénot (1903) recognized certain factors in mice as allelomorphic,[1] and that in my paper of 1914 I not only failed to mention that Cuénot had treated these factors in this way, but that I claimed to have brought forward for the first time a demonstration of the allelomorphism in question. In fact, I did overlook or had forgotten that Cuénot interpreted these types in this way; and curiously enough, my work was undertaken because Little on the alleged results of some of his own earlier experiments denied that the factors for yellow and gray are completely linked. despite Cuénot's evidence, then published, which Little now says established from the ratios obtained that the factors in question are allelomorphic.[2] Little wrote as late as 1913:

> "Yellow" in mice is no more allelomorphic to gray than is gray allelomorphic to black.

If this is the conclusion at which he arrived after his elaborate series of experiments and after Cuénot's work had been done, the need of further work would seem to be obvious.

The failure of several of us to fully appreciate the significance of Cuénot's statements and evidence in regard to allelomorphism may in part be due to the fact that in his second paper Cuénot had used the symbols G (gray) and N (black) as allelomorphs, and had besides used the symbols A (albino) and G (gray) as allelomorphs without, however, intending to mean that there was here a set of

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[1] Note 1903, *Archiv. Zool. Exp. et Gen.* (4), I.

[2] The numerical results are the same for complete linkage and for multiple allelomorphs. The evidence that would disprove the one would also disprove the other.